

VIRGINIA WILDLIFE

FEBRUARY 2002

TWO DOLLARS





Director's Column

William L. Woodfin, Jr

Sometimes February feels like being between "a rock and a hard place." We can look at the calendar and see that it is the shortest month of the year, but it seems to just about last forever. We know that winter is nearly over and that spring is just around the corner, but it doesn't feel that way. I'm sure that all of us have our own unique ways of getting through these last days of winter, and over the years I've come to rely on a few things that seem to work in my favor. Foremost is planning now for that next hunting, fishing or wildlife-watching trip. Whether you want to spend time afield with your family or just have a relaxing day by yourself outdoors, let me share with you some of the opportunities that our Department has to offer in the coming months.

The Department of Game and Inland Fisheries has a long tradition of providing information and education about the outdoors and all the recreational opportunities that it affords. Our Hunter Education program goes back decades and has been responsible for delivering a message about safety and ethics to countless thousands of Virginia hunters. In recent years we have broadened the reach of our hunter education efforts to now reflect more of an Outdoor Education experience. Through this expanded approach, we have been able to teach families, women, kids and young adults, the disabled, and just about anyone interested in the outdoors the skills they need to take advantage of Virginia's abundant wildlife and natural resources. Last year, more than 45,000 people took advantage of programs that ranged from fishing clinics to weekend-long outdoor workshops. Topics included everything from wilderness survival to safe handling of

firearms, from learning how to read a map to learning how to paddle a canoe. Regardless of whether you're a seasoned outdoors person or a beginner, we have something for every skill level. We list upcoming events each month in the Journal section of the magazine, or you can check our Web site at www.dgif.state.va.us to find out more about our educational opportunities. We certainly hope you will take advantage of these throughout 2002.

And for the rest of the winter, if we are not able to get into the outdoors, the next best thing is to enjoy the outdoors and stay inside at the same time. Where better to see the latest in hunting, fishing and outdoor essentials than at the Capital Sport Fishing, Travel and Outdoor Show. The show takes place February 15-17 at the Capital Expo Center in Chantilly, Virginia. The Department will be there with plenty of information and materials and folks who can answer your questions. I invite you to stop by our booth to talk with a game warden or a biologist. This is also a great opportunity to purchase your 2002 fishing license if you haven't already bought one.

In closing for this month, let me call your attention to a new feature that we have added in the Journal section of the magazine. "Around the Campfire" will give our staff folks an opportunity to share with you some of the experiences, both humorous and of a more serious nature, they have had over the years working with our wildlife resources. I often talk about how lasting memories are one of the greatest rewards from our outdoor experiences, and in this new feature, you will read about some of our staff's unforgettable experiences. We hope you will enjoy this new feature and we truly hope your New Year is off to a great start.



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Cover: Eastern cottontail rabbit (*Sylvilagus floridanus*) is found
throughout Virginia. The term cottontail refers to its fluffy white
tail, which is easily identified when it bounds away.

Photo ©Kraig Haske

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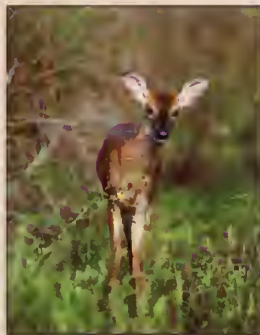
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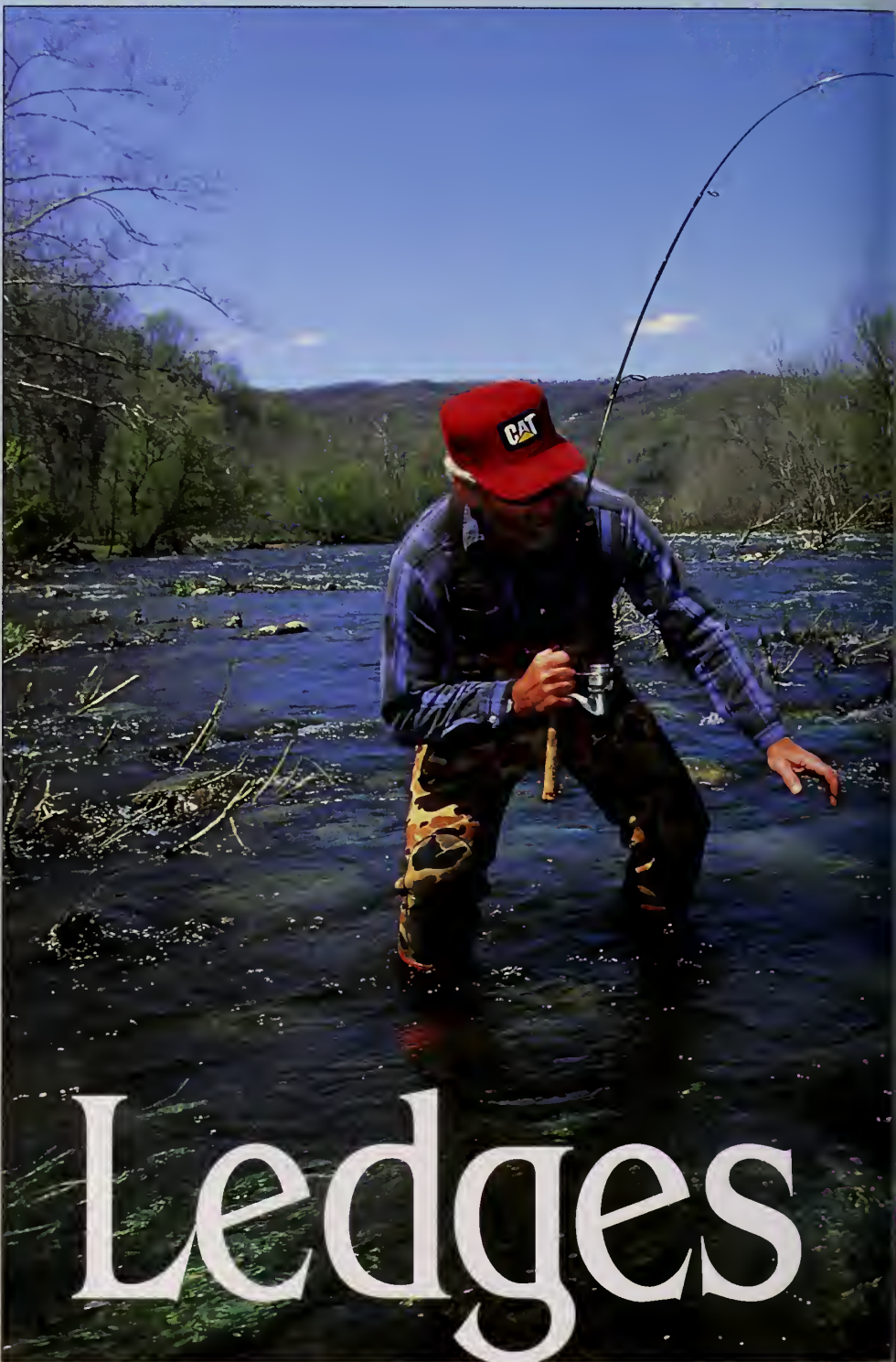
Often out of sight and out of mind, stream and river ledges offer anglers a year-round hotspot for big smallmouth bass.

by Bruce Ingram

Though the weather and water conditions may vary, though the seasons may pass, and though the lure choice may change, a deep-water ledge remains the best place to prospect for jumbo smallmouth bass on the Virginia river nearest you. A strong statement, to be sure, but a true one for the Old Dominion's best streams.

I am lucky enough to live on the banks of a Botetourt County stream literally full of smallies, and the James River flows just a 20 minute drive from my house. Thus, I am able to fish for my favorite game fish throughout the year. Even if you are not as fortunate as I am concerning where you live, by concentrating on ledges you too can put together a year-round smallmouth bass pattern that will work whenever you can go fishing.

Before delving into that pattern, it's important to understand why smallmouth are so attracted to this form of structure. Ledge rock, often composed of limestone, has alternately been chipped, cut, and smoothed for eons by the forces of weather and current. Those forces have carved out a multitude of sanctuaries in that rock for a wide variety of aquatic insects and especially crayfish.



©Dwight Dyke

Wade fishing near underwater ledges on rivers, like the Clinch, can be very productive. It's important to remember that care must be given when wading any river or stream.

Give

Madtoms also find safe havens in the deep recesses of that rock, as do sculpins, various minnow species, and the smaller members of the



clinches deep-water ledges being the ideal holding ground for large smallies is the overhead water column. A prime ledge lies in water 6–18 feet deep and nowhere else on a river or creek can a smallmouth so easily prowl for food with no fear of attack from above by predators.

A good example of how a ledge can be productive even in the winter occurred on a recent February day. After getting home about 4:15 p.m. from my job as a teacher, I hurried down to the creek that flows behind my house. The stream is a small one, just 20–30 feet wide in most places and on average just two to three feet deep. But periodically the creek forms 10–15 feet deep pools that possess a series of limestone ledges rising from the bottom, and those pools are where I concentrated my efforts.

On that cool, blustery afternoon, I landed four fat smallies before dark in the 2–3 pound range, which were lurking in the heart of the pool. This incident serves to dispel several myths about wintertime smallmouth angling. Don't believe that old adage about bass "hibernating" through the winter. By their heft, all those bass had been on their feed. Second, don't feel that you have to have agonizingly slow retrieves to entice fish. My best fish that day fell for a Mepps gold Aglia spinner retrieved rapidly. That smallie was lying in the very deepest water in the middle of the pool. The mid-

You The Edge

channel and flathead catfish families. Given this readily available food source, big smallmouth bass likewise can find their respective

niches in these stone crannies that also serve as an important escape from the current.

But the final ingredient that



Smallmouth bass (*Micropterus dolomieu*) are commonly found lurking under deep-water ledges throughout the year. Jigs, plastic worms, crawfish imitations, and live baits can be the key to get them to bite.

pool area offers the most stable water in terms of temperature and current flow, and is the winter "sweet spot."

Other good cold weather lures include deep-diving minnow imitations and 3-inch grubs on a 1/4-ounce jighead. Perhaps the premier wintertime ledge bait for big smallmouth, though, is a 1/4 to 1/2-ounce jig-and-pig hopped slowly across the bottom. For that matter, it's a great lunker bronzeback bait throughout the year.

Ledges remain a big bass magnet in the spring, but where and how you fish this structure changes significantly from the winter months. Richard Furman, who fishes the James River frequently from his home in Buchanan, looks for two different kinds of areas.

"The biggest bass hold in two places: deep-water ledges that have springs or small creeks entering them, or ledges that receive full sunlight," says Furman. "In both places,

the fish are merely stacking up in the warmest water that they can find, which also offers both food and cover as the ledges do. The warmer water from the spring and small tributaries, and the water heated by the sun serve to make both the bass and their prey more active."

One of Furman's favorite baits is a 3-inch plastic crawfish rigged Texas style with a 1/0 hook and a 1/4-ounce bullet sinker. Although crayfish typically spend much of the winter in burrows, they become increasingly active in spring and a bogus crustacean crawled along the bottom accurately matches the movements of these creatures.

Furman notes that the use of a 1/4-ounce or larger bullet sinker is a key ingredient to spring soft plastic success. Many of Virginia's rivers typically run high and fast in the spring. If you want your plastic baits to plumb the recesses of deep-water ledges, you must use enough weight for the lure to get down and stay down where the big females lurk. Sometimes bullet sinkers as large as 3/8-ounce must be employed.

Last year on an April excursion on the James with Furman, I watched him catch bronzeback after bronzeback on a variety of deep-

diving crankbaits. Some of the most effective ones are the Bomber Model A series, Storm Wiggle Warts, and Luhr Jensen Hot Lips. Also good, particularly for trophies, are 6-inch black plastic lizards and 6-inch chubs or minnows.

Although I concentrate on ledges in the winter and spring for overgrown bronzeback, the season when I catch my very biggest bass from this structure is summer. One blistering hot day last July, when all the fishing reports from the local lakes had reported that the black bass had "shut down," I spent four hours wading a stream near my home. Just by working ledges that day, I caught eight keepers and lost two more. My best fish was a trophy smallmouth that went just under 5 pounds and I also landed a trio of 2 pounders and a fine 3 pounder. I was indeed thankful that the fish had "shut down." If the bassing had been any better, the excitement would have been unbearable.

During the warm weather period, I prefer deep-water ledges that have riffle areas no more than 50 yards above them. That inflow insures both well-oxygenated water and a constant source of food entering the area. Whereas in the winter,



the midpoint of a pool is most productive, now I prefer the upper and lower ends. The most active bass will typically be holding at those points.

Regarding lures, far and away my favorites are 6-inch Zoom or Mister Twister Phenom worms in pumpkinseed, black, or purple,

rigged Texas style with 1/0 hooks and with 1/8 to 1/4-ounce bullet sinkers. When the current is moderately slow, there is rarely any need for heavier weights. I inch the worms along through the "green water" in between rock ledges, periodically lifting the baits a half foot or so and then allowing them to settle once more. Strikes usually occur on the fall or when the artificial crawler lies still.

Four-inch ring worms, in the same colors as mentioned above, also work well—especially when the fish seem to want a smaller bait. The aforementioned 5 pounder, for instance, hit a black ring worm that was rigged Texas fashion with a size 1/0 hook and without any sinker at all, which leads to an important point. If you find that the fish are spooky and/or lethargic because of a summer cold front or ultra clear water, try fishing ring worms without weights. This results in the bait landing very gently and then undertaking a tantalizing slow descent. You may find, as I did, that this form of finesse fishing makes the long wait for the bait to fall worthwhile.

Dick Pickle, who operates the Wilderness Canoe Company in Nat-

ural Bridge, offers different options during the summer months.

"Hellgrammites or soft plastic hellgrammite lookalikes are great summertime baits," he says. "On ledge-filled rivers, like the upper James and New, or on rivers that have lots of boulders that lie close together, like the Piedmont James and the Rappahannock, for example, nothing can out fish a hellgrammite."

"I fish both the live and soft plastic hellgrammites the same way, that is very slowly above the bottom. To make them rise above the bottom, I put a split shot some 12–18 inches above, which causes the bait or lure to glide along over the substrate."

Pickle says that topwater baits worked over ledges also draw vicious summertime strikes. Good choices here include Heddon Tiny Torpedoes, Rebel Pop'Rs, Zara Spook Puppies, Storm Chug Bugs, buzzbaits, and floating-diving minnows. He concludes that anglers fly-fishing should try various poppers

On rivers like the Shenandoah, a good tactic is to drift around, not over, a ledge and then debark from a canoe in shallow water, and fish upstream.



for surface combat and dragonfly and stonefly nymph imitations for deep-water ledge action.

Because of the low, clear water conditions of autumn the largest smallies are now exceptionally easy to find and sometimes maddeningly difficult to catch. The thin water characteristic of the early fall forces the bass into those ledge areas that still possess deep water, and fishermen can often see these fish cruising about. And just as often, the smallies will flee when an artificial makes even a gentle splat upon the water.

Don Roberts, who operates the

Front Royal Canoe Company on the South Fork of the Shenandoah, gives tips on how to combat that situation.

"The first thing I do is seek out ledges that have riffles or Class I rapids entering above them," he says. "The fish that gather in those ledges will be the most active ones because the water there is better aerated from the moving water. And, second, I downsize my baits because the smallmouth are so spooky.

"For example, a great fall lure is a 3-inch grub on a 1/8-ounce jighead. Use light line with that bait, say 6 pound test, and you will get more

strikes. I sometimes work a grub parallel to the ledge and thus can cover the whole structure. But the most effective way to fish this bait is to cast beyond the ledge, bring the grub up to the lip of the structure, and then let it sort of tumble down into the deep water behind the ledge. Hits often take place as the grub falls."

In addition to this tactic, another autumn trick for hypersensitive smallies is to split shot 4-inch worms, ring worms, grubs, and tube baits. Merely affix a small shot some 12–18 inches above the bait and then Texas rig a size 1/0 hook into these plastic concoctions. The split shot causes the lure to hover above the bottom, gently undulating in the mild current. Smallies will often flee at the entrance of the bait into the water and then quickly return to smash it.

For truly balky fish and for a change of pace, try 4-inch soft plastic jerkbaits, such as Bass Assassin and Shad Assassins. Mark Frondorff, an Alexandria resident who guides on the upper Potomac, says this is his favorite autumn artificial. He makes long casts with the bait and then works it erratically back to his canoe.

Later in the season, Frondorff continues to probe ledges. As the late fall rains put some color back into the water, the guide switches to larger baits, such as jig and pigs and spinnerbaits.

Yes, there is no better place to consistently take good-sized James and other river smallmouth bass than a deep-water ledge. By changing just slightly where and how you fish this form of river structure, you can let ledges give you the edge over smallmouth throughout the year. □

Bruce Ingram is a nationally recognized outdoor writer and photographer. His recently published book The James River Guide: Fishing and Floating on Virginia's Finest is a must read if you enjoy fishing smallmouth bass. It's available at most local bookstores or call Ecopress at 1-800-326-9272.



©Bruce Ingram

Given the right lure, proper boat positioning, and water conditions, anglers like these on the upper James River can expect great smallmouth action throughout the year.

Hunting for Better Quality Wildlife





by Denny Quaiff

Looking back, wildlife habitat has changed dramatically throughout Virginia over the past 50 years. Large agricultural fields continue to dwindle. Areas of the state that were famous for their bumper crops of peanuts and soybeans are now planted in cotton fields. The small family farms that raised crops such as corn, wheat, oats, barley, and hay are few and far between. Most of the original landowners have passed on, with family heirs moving away from the old home place, resulting in more and more estate sales. Much of the Old Dominion that used to be beautiful countryside is now being developed into industrial parks and shopping malls. Even when you do find horse and cattle farming operations scattered throughout the state, studies will show there is typically very little food for wildlife to be found. A large number of these farms are raising fescue grass for pasture grazing and hay that is all but useless for wildlife.

Today there seems to be a growing interest in wildlife plantings. I believe that each year more and more people have concerns about our shrinking wildlife habitat and feel obligated to get involved. Deer, turkey, small game, and nongame animals alike require year-round quality food and nourishment in order to maintain the maximum carrying capacity of the land. In order to maintain healthy numbers of wildlife, land stewards should consider their options.

Over the past 25 years, I have been directly and indirectly involved in planting, maintaining, and improving food sources for wildlife. During the past decade, I have witnessed more and more conservation-minded citizens trying to fill the gap of lost habitat throughout the state. The following is a listing of wildlife management practices that will hopefully offer some incentive to get more people involved in this growing problem.

Perennial Food Plots

Food plots that continue to produce wildlife food year after year should be considered an important part of any wildlife habitat supplemental planting program. Perennial food plots are low on maintenance and usually last three to four years before replanting is required.

Some of the favorites in the clover family include medium red, white

dutch, and ladino. At the top of the list for high protein wildlife food is alfalfa, which is a popular legume, especially for deer. The grass that is commonly used for food plots is orchard grass. The next most common is perennial rye.

One of the most popular and widely advertised perennial seeds is ladino clover. Ladino clover grows well throughout Virginia and is a favorite food for both deer and turkey. Food plots of clover on one to two acre sites are best, providing enough size that hardy-grazing animals like whitetails will not wipe out the field.

The first step to establishing any perennial food plot is to take a soil test to determine the pH level of your site. One of the worst mistakes made by wildlife enthusiasts trying to establish new areas for planting, is not determining soil fertility. Lime and fertilizer are a whole lot more expensive than a soil test!

The pH scale runs from 1–14. When looking at your pH level remember that 7 indicates a soil that is essentially neutral. Clover is very pH sensitive and grows best in soils that range from 6.5 to 7. Your county extension agent can advise you where to get the sample analyzed.

Clover likes lime. Apply lime in bulk in accordance with your soil test. A good rule of thumb is 1 ton of

Lime is an important part of any farming program, and due to its inexpensive cost, compared to fertilizer, it is best to apply lime in bulk whenever possible.



Today, people who like to hunt and watch wildlife, are having a growing interest in how to improve habitat. Here are a few tips that will help to make sure that everything comes up green.



lime for each 0.5 of pH below 6.0. For example, a pH of 5.0 would require 2 tons of lime per acre. Lime is relatively inexpensive when compared to fertilizer, and I have found that it is best to have it delivered in bulk. There is an old saying about lime, "Lime doesn't cost, it pays."

When it comes to fertilizer use a mix with a low nitrogen content. Clover makes its own nitrogen, and fertilizer like 10-10-10 will destroy a clover field over time. The recommended application is 0-20-20. Fertilizers with higher nitrogen content will only increase weed growth and choke out the clover growth. A good rule of thumb is 300 pounds to the acre. If you are not sure about the amount of lime and fertilizer needed, contact your county extension agent to review the results of your soil test.

In order to have any type of success with a clover crop you must prepare a good seed bed. Make sure that the land has been properly cultivated, working the lime and fertilizer well into the soil. Before planting a drag/harrow should be used to complete the effort and level the field.

After all of the site preparation is complete and you are ready to sow your seed, a mechanical or hand spreader can be used. The manufac-

turers recommended application should be listed on the seed bag and the experts at the feed and seed store should be able to provide detailed planting literature upon your request.

After your seed has been broadcast, run the drag/harrow over the field covering the seed lightly. When the work is finished your seed should not be more than 1/4 inch deep in the ground. More clover stands fail due to "burying" the seed too deep than for any other reason.

I strongly recommend adding one bushel per acre of either wheat or rye with clover plantings in the fall. In the spring you can add oats with clovers and the results could only improve the overall quality of your site.

General planting dates for clovers in the spring are February 1–March 1 and September 1–October 15 in the fall for our coastal regions. In the piedmont region February 15–April 1 in the spring and August 15–October 1 in the fall works best. The mountains prefer later dates with March 1–April 15 in the spring and recommend earlier planting with August 1–September 15 in the fall. Timing is everything when it comes to farming. In my opinion, the earlier you plant in the spring and the later you plant in the fall within the



©Denny Qualif

recommended planting dates, the better. I must say that for most of Virginia, the fall dates are preferable due to the hot dry summers, which can destroy tender seedlings.

Maintaining established food plots is a must. After the first year, mowing clover food plots and grasses should be done when the field has grown 10–12 inches tall. Never mow when it is extremely hot or dry, and make sure that you leave the field 1–6 inches tall when cutting is done.

Top dress clover and grass fields in the early spring and fall with the



©Scotty Lovett

Wildlife Conservation Seed Program

Resource Management, Inc. (RMI), a specialist wildlife habitat consulting firm based in Maryland, established an agreement with major agricultural seed companies to utilize out-of-date seed for food plot plantings. RMI makes the seed available to anyone who will plant it and leave it for wildlife. The seed is free to the participant except for freight and a small handling charge. For information on how to participate in this conservation program contact Resource Management, Inc., 300 Academy Street, Ste 201, Cambridge, Maryland 21613 or call (410) 228-3755 or visit their Web site at www.resourcemanagementinc.net. To obtain seed contact Jay Newman, Country Corner, 1942 Cartersville Rd., Cartersville, VA, (804) 375-3749.



Plowing and disking the ground before planting season is recommended. A well-cultivated seed bed will yield a bumper crop, with a little help from Mother Nature.

recommended fertilizer application. Perennial food plots are definitely a good choice and offer long-term cost savings for wildlife managers.

Annual Food Plots

Corn is a favorite winter food for a host of wild creatures. Some of your wild animals and birds, like squirrel, raccoon, bear, turkey, and crow, will work on a corn field in early summer, although, it has been my observation that whitetails show little interest until the weather starts to turn cold.

In late October my hunt club likes to knock down about 75 percent of the standing corn with the tractor and sod plant winter wheat in the rows. Corn, which is a great source of energy, builds fat reserves in wild animals during the cold winter months. The wheat that continues to grow all winter is like a magnet for wildlife to graze on, offering a combination of two preferred foods that provide the best of both worlds.

It is most important to get your land in good shape before planting. If the land has not been worked for some time, plow the ground if at all

possible. My father always planted his corn between May 1 and May 15, and it appears that that time frame would work well throughout the state. My hunt club uses a corn planter to drill the seed. However, if a grain drill or corn planter is not available, rows can be cut and seed can be hand planted or the corn may be broadcast and lightly covered with a drag or disk.

Planting sites of a quarter to one-acre work well for corn. Proper applications of lime and fertilizer are necessary. Talk with the experts at your local feed and seed coop discussing what seed and fertilizer works best in your region.

Along with the corn and winter wheat, rye, rye grass, and oats are outstanding annual crops. Some hunt clubs like to plant soybeans for whitetails. It goes without saying that deer love soybeans. However, if you do not have large acreage available for planting (three to five acres minimum) the deer will eat the crop to the ground before it gets a chance to mature.

Another annual that my father always used as a cover crop to help get the land into shape for the long-term is crimson clover. When planted in the fall, crimson clover will produce good winter food for wildlife. Old timers relied on fall cover crops to turn back into the soil in late winter

and early spring, to help improve poor land, and jump-start their spring plantings. A good winter cover crop can play a major role towards a strong perennial plot that could supply food for years to come. However, for both small grains and crimson clover, a fair stand will usually persist the second fall if you do not turn it under. This approach can save on planting cost and labor.

Many wildlife managers may not totally agree with recommendations for annual food plots, and I must agree that it is very labor intensive. It is my opinion that annual crops should be considered as part of the mix and regarded as an important segment of any complete, wildlife-planting program.

Enhancement of Wild Forage

Hard and soft mast crops are naturally occurring forages. Wildlife depends on natural wild forages for up to 90 percent of what they feed on. Developing better wildlife habitat, by fertilizing hard and soft mast crops, is another practice that has become more commonly used by overseers of wildlife.

Fertilizing native fruit and nut bearing trees is a good way to enhance the annual yield for wildlife. Persimmon, apple, and pear trees that are often found around old abandoned house sites are favorites for wildlife. Hardwood ridges, where oaks and beechnuts are most often found, is another prime feeding ground for wild animals. Applying fertilizer to the existing food source requires only a portion of the time and expense required for planting food plots.

It is recommended that the fertilizer be applied directly below the spread of the tree's branches or more commonly known as a drip line application. Create a trench 6-8 inches deep circling the area using 5-10-15 or 10-10-10 fertilizer in late winter before the trees start to bud. Come back in early June and apply the fertilizer again for maximum results.

Another option is the use of slow



©Denny Quaiff

release tablets that can be used by simply digging holes around the trees drip line 1-1½ inches in diameter. The tablets that I have used were 20-10-5 providing the extra high nitrogen content. By using this slow release fertilizer formula, trees will only need to be treated every two years. If your local feed stores do not carry this product, you should be able to order it from a supply house.

Oak trees that have been fertilized for a number of years will generally produce better acorn crops that become a number one food in the fall for turkeys and deer. A very successful bow hunter, who has been fertilizing oak trees for a number of years, told me that he had observed whitetails walking past trees that had not been fertilized, to feed on those that had.

Soft mast, like Japanese honeysuckle and greenbriars, are natural browse. Blackberries, mushrooms, and wild grapes are all prime food for wildlife. One of the primary food sources for wildlife during the lean winter months in the Old Dominion is Japanese honeysuckle. This perennial climbing or trailing woody vine,

that is found throughout the state, is considered by wildlife biologists as a major, cold weather food source for wild creatures.

Japanese honeysuckle can produce over 3,000 pounds per acre per year dry weight. This high quality forage ranges from 9-20 percent protein, depending upon the season and site quality. Wildlife managers suggest fertilization with 150 pounds of ammonium nitrate and 50 pounds of triple super phosphate to the acre applied during the months of March and September.

Honeysuckle is most often thought of as a high quality, deer browse. However, I recall quail hunting in late February back in the 80's and finding a covey late one evening around an old abandoned house. Upon returning home and dressing my birds for the frying pan I was amazed to find their craw full of honeysuckle leaves.

Look for established honeysuckle patches and apply the necessary application of fertilizer each year for optimum growth. Japanese honeysuckle should be considered a top-notch wildlife food source.

Conclusion

With wildlife habitat continuing to shrink throughout the state, it has become more and more of a demand for wildlife enthusiasts to make an honest commitment. In order to maintain a quality wildlife resource, natural and commercial food must be abundant throughout the year.

Take the time and energy to become a true steward of the land. There are a number of additional small game plots that wildlife experts may recommend. Talk with the people at your local feed and seed coop about planting for wildlife. For more technical questions consult a wildlife biologist or the county extension agent in your area. If quality wildlife is one of your goals, it is time to get involved. The rewards are great! □

Denny Quaiff is the senior editor of Whitetail Times, the official magazine of the Virginia Deer Hunters Association. For more information on the Association, write Virginia Deer Hunters Association, Inc., P.O. Box 34746, Richmond, VA 23234-0746 or via the Internet at: www.virginiadeerhunters.org.



A Shocking Stream

by Carol Heiser and Dean Fowler

illustrations by Spike Knuth

Fisheries biologists are a modest, hard-working bunch. They lumber about in clumsy, rubber waders, slog around the shorelines of streams and ponds, spend countless myopic hours at the computer analyzing data, and drive around in muddy vehicles that smell like, well, fish. Passionate about aquatic resources, they devote enormous energy to the task of assessing the health of Virginia's fish populations and the key habitats that fish depend on. Fisheries biologists use several techniques, such as electrofishing, gill-netting, and tagging, to discover clues about various fish species and the waters they live in. It is important information on which management decisions are based.



Pumpkinseed sunfish are common in warmwater Virginia streams.

Wild in the woods

A Snapshot Underwater

Fish populations fluctuate over time for a variety of reasons. Weather and disease are two natural factors that can influence fish abundance. For example, excessively low or high temperatures or flooding can cause sudden die-offs. Also, because fish are cold-blooded and their body temperatures fluctuate with changes in the water, temperature affects just about everything they do: breathing and feeding rates, spawning location and timing, and even migrations. Weather can also affect the abundance of organisms that fish feed on or that feed on them.

Frequently, human activities have a more significant influence on fish populations than natural factors. People catch large numbers of fish for food and sport, and land-use and development affects water quality and fish habitat. *Fisheries management*, therefore, is much more than simply stocking fish, it is the job of evaluating a resource and making sure that fish populations stay at healthy levels despite adverse factors, both natural and human, like those listed above.

The very first step a biologist takes is to find out how many fish are “out there” now and how they are doing. However, fish are elusive and hard to see underwater; frankly, it’s impossible for us to swim around a pond and count them all. Since we can’t count or see them all, we’ll have to be satisfied with looking at a portion of the population, called a *sample*, and with collecting or *sampling* some individuals. The sample gives biologists a “snapshot” of what’s going on in that body of water at that particular point in time. The technique chosen for sampling depends on the type of fish and the type of habitat they’re in, whether that be a stream, lake, shoreline, open water, or shallow water.

Stunning Fish

In freshwater, the most commonly used sampling technique is called *electrofishing* or *electrosocking*. The term might conjure up a scene of Frankenstein’s lab, with a white-coated scientist wielding a plugged-in fishing pole, but that would be a flawed impression. Imagine instead a chilly, burbling mountain stream in which biologists and crew members walk cautiously over the streambed cobbles wearing rubber hip waders. One of the members carries a portable, gasoline-powered electric generator (or battery) on a backpack, or it is towed along using a tote barge. In his hands are two grounded, metal poles, one with a negative electrode on the end and the other with a positive. A device called a *pulsator* is used to adjust an electric current that runs between the two poles, the ends of which are placed beneath the water’s surface. The water, in essence, serves as the “wire” that connects the two electrodes (see illustration).

When the current is turned on in the water, the other crew members are strategically poised a few meters downstream at various points in the streambed, with dip nets ready to scoop up any fish that are stunned by the biologist doing the “shocking.” Within moments, an otherwise empty-appearing stream reveals a remarkable array of hidden treasure: red-striped candy darters, silver and saffron shiners, black-spotted and mountain redbelly dace, gold-speckled brook trout, and shimmering rainbow trout.

Fish are generally unharmed by electrofishing but can display several different responses to the electric field. Many of them escape by exhibiting a fright response when they first sense the electricity. Some exhibit a muscle response

which causes them to swim toward the positive pole. Others are rendered temporarily unconscious. Those that are caught provide invaluable data about the species composition of the stream, the size and age classes within a species, and general growth and productivity rates. Once examined and measured, the fish are released live back into the stream.

Although crew members are insulated from the electricity in the water by wearing rubber waders, this





Netting

sampling method involves a degree of risk, because a crew member could fall into the electrical field or develop a leak in the waders. The power output of electrofishing generators is quite capable of stopping a human heart; so, strict safety measures are observed. Wading is generally only done in small to medium-sized shallow streams that are inaccessible by boat.

In larger streams, electrofishing by boat is preferred. The electrical field from an electrofishing boat is effective on fish to a depth of about 8 feet. Consequently, the boat is generally used for sampling fish along shorelines and in other shallow areas of lakes and streams. Because many popular game species such as largemouth bass, smallmouth bass, bluegill, shellcrackers, and trout often inhabit these types of habitats, electrofishing is the fish sampling technique most used by fisheries biologists in Virginia and nationwide.

Most other fish sampling techniques involve the use of nets. Many are stationary and suspended from poles, like the *gill net*, which causes fish to become entangled in the net's mesh when they swim into it. Stationary nets also include *trap nets* (which are designed like conical turtle traps), *Fyke nets* (which are trap nets with wings that guide fish into the trap), *trammel nets* (which have large pockets), and *pound nets* (a series of smaller and smaller impoundments that corral fish into a concentrated area).

Other nets, referred to as active nets, require the user to move the net through the water, such as a *seine* (pronounced "sane"), which is dragged through the water to encircle fish. A frequently used active net is the *trawl*, a somewhat conical-shaped net that is dragged behind a boat. All of these nets are also used by the commercial fishing industry to harvest fish for our dinner tables.

Raising Fish Fry

Once the sampling process is completed and the data are crunched on the computer back at the office, a biologist can then begin to outline remedies that may be needed to restore a stream or other body of fresh water to a more balanced composition, *if* necessary. The most commonly used remedies include seasons, creel limits, fish stocking, and habitat improvements. Fish stocking is also often used simply to provide anglers with a wider variety of species to fish for.

There are four warmwater and five coldwater fish hatcheries operated by the Virginia Department of Game and Inland Fisheries. In the western part of the state alone, over one million catchable trout and a quarter of a million fingerling trout are produced each year. These hatcheries are responsible for supplying the

fish needed to restock a stream, river, or pond.

From egg to fry to fingerling, you can see all stages of fish development at a hatchery. Trout are reared in stacked-tray incubators and then in outdoor ponds or *race-ways* which mimic stream flow by circulating water in a con-

trolled setting. Warmwater fish, like bass, are either spawned naturally in a pond or are hatched in large jars and then stocked in ponds when they are just a few days old. When the time comes to take the fish by truck to a stream or river and *stock* or release them, biologists inventory the fish and record the exact location, species, and number stocked. This information is then used for comparison when the stream is sampled again at a future date.

Biologists gently remove eggs to give future fish generations a head start in the hatchery.



Fish with Mussels

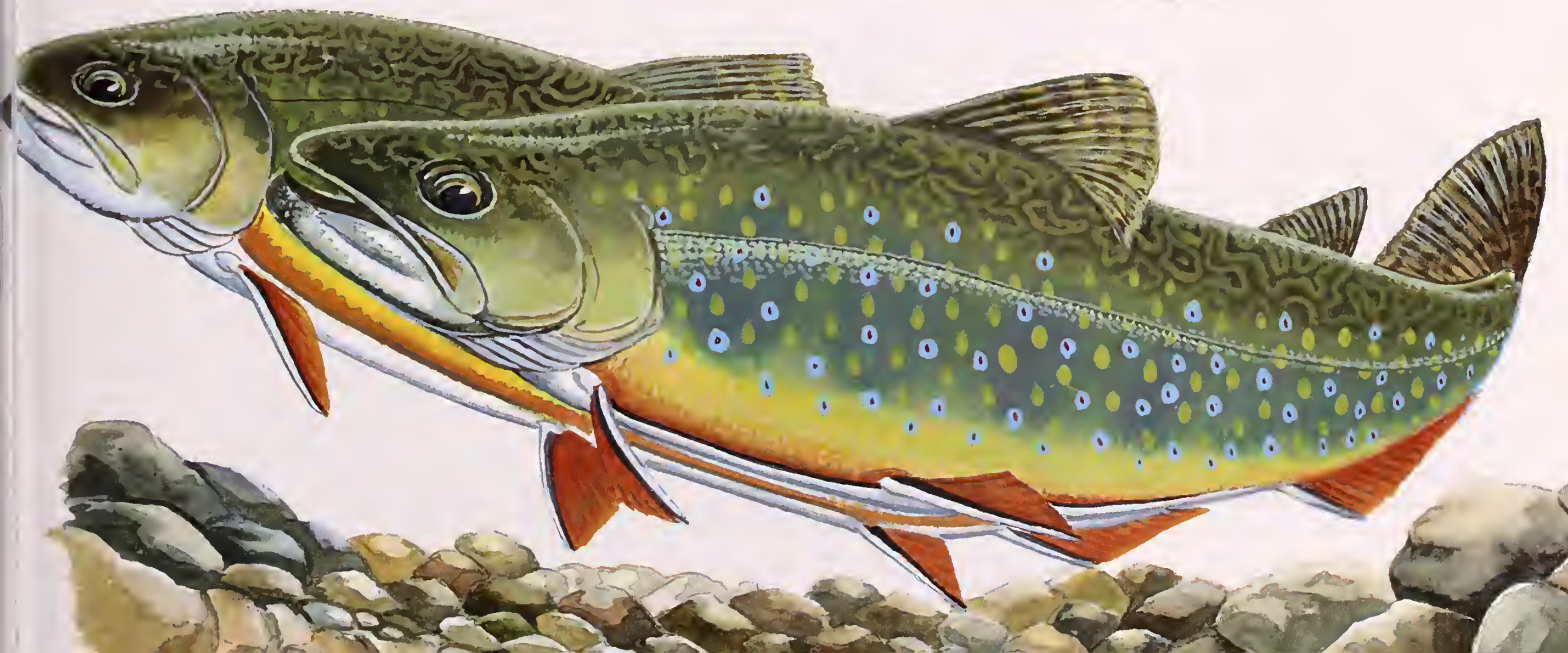
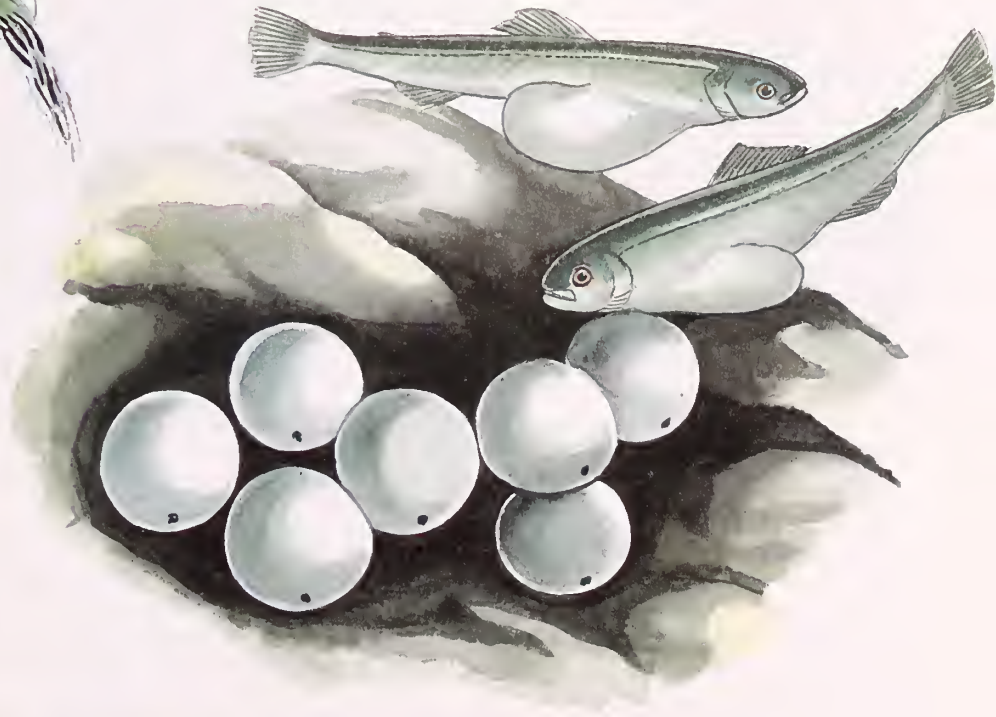
State fish hatcheries are also playing a role in another important project: the restoration of several freshwater mussel species that have declined in recent decades because of poor water quality and other environmental factors. Mussels, which are *bivalves* or mollusks like clams, rely on fish to carry out their life cycle, and each mussel species is associated with a particular fish species. A developing mussel larva, called a *glochidium*, attaches itself as a parasite to the gills of its host fish and obtains nutrients from the fish's tissues. After a few days to a few weeks, the glochidium transforms into a juvenile, drops off the fish, and begins an independent life. Unfortunately, mussel populations in the wild are low, and their associations with host fish are so specific, that the probability of the right

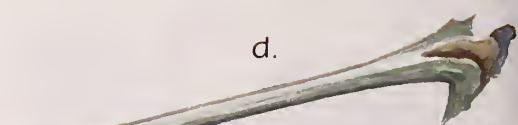
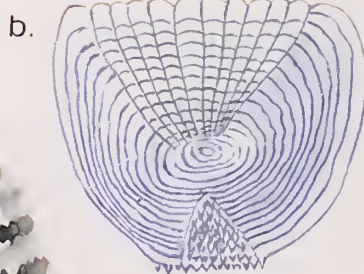
mussels coming in contact with the right fish to carry out their unique life cycles is very slim.

In an attempt to give the wild populations a boost, biologists are raising mussels, like the endangered oyster mussel, with host fish, like the darter, in the Marion state fish hatchery. They collect male and female adult mussels from the Clinch River system in spring and put them in the hatchery to reproduce. Meanwhile, darters are also collected from the same area of the river and placed in holding tanks at the hatchery. When the mussels produce young, the larvae (glochidia) are removed from the females and transferred to the gills of the darter fish. The darters play host to the larvae until the mussels develop into the juvenile stage and drop off. Biologists then siphon the tanks to collect the tiny mussels, which are between the size of a dime and a quarter, and then release them back into the river where the original adults were collected. The darters are not released but are kept in the hatchery to host additional generations of mussels. In this way, over 3000 young mussels were released in 2001, about 200 of which were the oyster mussel species.



Circulating water provides oxygen to fish eggs being hatched in "egg jars" (above). The developing fry (right) are nourished until they are the proper size for release into a stream or river, like these cold-water brook trout (below).





A small sampling of scales is scraped from a fish (a.) to observe rings of growth on each (b.) much like tree rings. The rings on an ear bone or otolith (c.) are more accurate. The spine of a catfish (d.) can also be cross-sectioned (e.) for study.

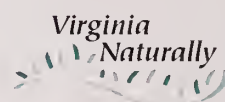
Frequently Asked Questions, from the Northeast Fisheries Science Center, www.nefsc.nmfs.gov. From the main page click on "Fish Facts," then on the next page click on "FAQ."

Freshwater Fish Farming in Virginia, a 1997 publication written by Helfrich, Orth, and Neves at Virginia Tech, can be downloaded from www.ext.vt.edu/pubs/fisheries/420-010/420-010.html#L9. You can also see a listing of **Hatcheries in Virginia** from their Table of Contents page.

Access the *Virginia Chapter of the American Fisheries Society* through the national Web site at www.fisheries.org

The *Field and Stream/Outdoor Life* magazines have numerous articles related to fish and fishing. Go to www.fieldandstream.com and click on "fishing" for a regional fishing guide, the 25 best fishing books, Ask the Expert, and much more.

Carol Heiser is a Wildlife Habitat Education Coordinator at the Virginia Department of Game and Inland Fisheries. Dean Fowler is a fisheries biologist with the Department who works out of the Williamsburg Regional Office.

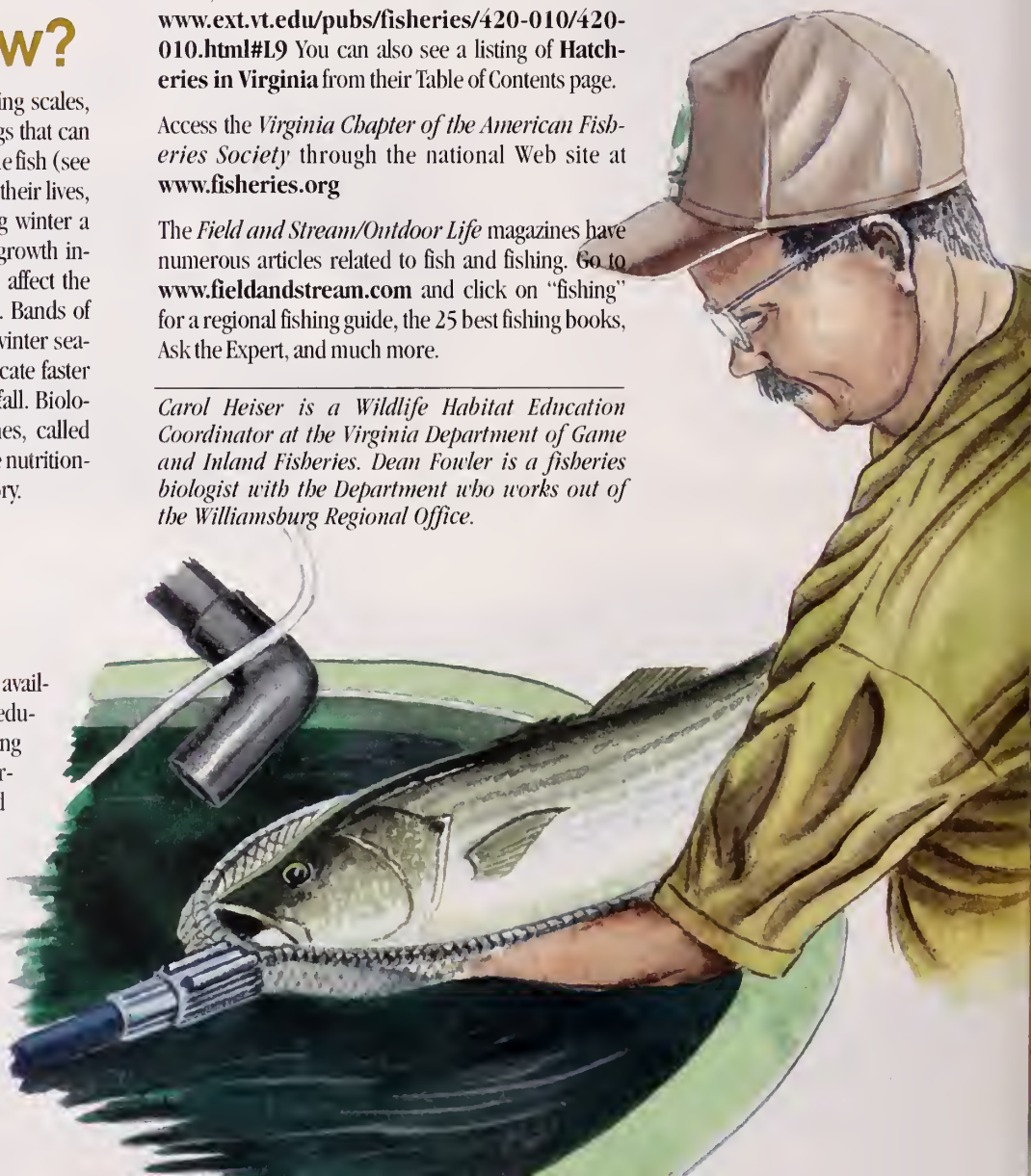


Did You Know?

A fish's body is protected by overlapping scales, and each scale contains microscopic rings that can be read like tree rings to learn the age of the fish (see illustration). Fish keep scales throughout their lives, except when lost through injury. During winter a fish grows slowly; in spring, the rate of growth increases. These changing rates of growth affect the distance between the rings on the scales. Bands of rings that are close together mark each winter season, whereas widely separated rings indicate faster growth that occurs from spring through fall. Biologists can also examine a fish's ear bones, called *otoliths*, to determine its age and learn the nutritional status and other clues about its life history.

Learning More...

Careful Catch is one of many activities available to youth leaders and other outdoor educators through the Sportfishing and Angling Resource Education program of the Virginia Department of Game and Inland Fisheries. The activity illustrates the proper way to handle and release a fish, such as using barbless hooks, artificial lures, and landing nets when possible. For information about this or other activities from the ARE program, contact Anne Skalski, Aquatic Education Coordinator, in Richmond at (804) 367-6778.



Spring Fishing on Diascund Creek Reservoir

by Marc N. McGlade



A joint effort by VDGIF, James City County Parks and Recreation, and the City of Newport News came together in 1999 to dedicate and reopen Diascund Creek Reservoir.

Excellent fishing,
a serene and
tranquil setting,
and many
other desirable
attributes await
visitors at
Diascund Creek
Reservoir.

Isn't it nice when people work together as a team? The whole, as the expression goes, is greater than the sum of its parts. The "whole," in this case, describes the fee-free boat ramp at Diascund Creek Reservoir, along the New Kent County and James City County border. In 1999, anglers became the benefactor of the teamwork between the Virginia Department of Game and Inland Fisheries (VDGIF), the City of Newport News Water Works, and James City County Parks and Recreation resulting in public lake access to chase Diascund Creek's multiple species.

In years past, anglers came in droves to fish Diascund Creek Reservoir. A concessionaire provided lake access, but since its closing in 1994, the only way the public could fish was to seek permission from private landowners surrounding the lake, or join a local hunt club. That is until the teamwork, commitment, and collaborative efforts of these agencies took over, and pro-

vided Virginia anglers with access to this beautiful reservoir.

Sam West was the project engineer for VDGIF who worked on the Diascund Creek Reservoir project. He was instrumental in the design and creation of the ramp, pier, and parking access. "It was a cooperative agreement between VDGIF, James City County Parks and Recre-

ation, and the City of Newport News Water Works," West said. All three organizations' efforts resulted in a superior launch ramp and pier that is open and free for the public to use and enjoy—year-round.

This scenic reservoir isn't a newcomer to the Old Dominion; it opened in 1966. It covers 1,110 surface acres and its calm water laps

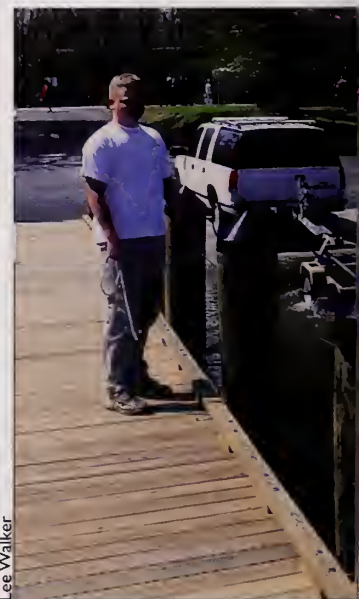


©Marc McGlade

Referred to as the freshwater barracuda, the chain pickerel (*Esox niger*) is a common catch at Diascund Creek Reservoir. In 2000, the reservoir ranked third in the state for trophy chain pickerel fish certificates.



Lee Walker



Lee Walker

against the clay banks of the quaint town of Lanexa, a short drive from Williamsburg. It's one of several water supply reservoirs for the City of Newport News. Diascund Creek Reservoir is a trolling motor-only lake; gasoline engines are strictly prohibited, making it even more tranquil in its country setting.

This reservoir has a little something for everyone. There are numerous birds that can be seen, including great blue herons, bald eagles, red-tailed hawks, and an assortment of ducks and geese. Beavers, white-tailed deer, and cattle are common sites. Fish species are numerous too. Largemouth bass, shellcracker, bluegill, pumpkinseed, white and yellow perch, black crappie, chain pickerel, brown and yellow bullhead, white catfish, carp, longnose gar, and bowfin all call this special reservoir "home." Many of these species dine upon the major forage base of gizzard shad and blueback herring.

The Bright Future of the Fishery

The latest news from Diascund Creek Reservoir, regarding the fishery, is good. Fisheries biologist, Mukhtar Farooqi, indicates the future is bright and the Diascund fishery is doing very well.

"Our spring electrofishing sam-

pling in 1999 confirmed the bass population is in very good condition in terms of abundance and quality," Farooqi said. "The proportion of large bass in the sample was high for those greater than 20 inches in length."

Two of the five sites sampled were in the Diascund Creek branch of the reservoir, upstream of the Route 627 bridge. "These turned out to be the most productive sites for bass at the time of sampling, especially in the lily pads," he added.

The bluegill population was also in good shape having improved significantly compared to previous surveys. "Our catch rate for sizable bluegill more than doubled. The fish were healthy and had growth rates that compared favorably with the average for the Coastal Plain," Farooqi said.

VDGIF administered a creel survey that indicated the vast majority of anglers—75 percent—targeted largemouth bass, however, 88 percent of them practiced catch-and-release. "The average weight of a harvested bass was a little over 2 pounds," Farooqi said.

Bluegills provide anglers with tons of fun according to Farooqi. "They represented 26 percent of the total harvest, while chain pickerel, white perch, and yellow perch were of secondary importance, providing a catch-and-release fishery."

Anglers who frequent this reservoir already know about the stellar chain pickerel trophy fishery. Diascund Creek ranked third in the state for chain pickerel trophy fish certificates in 2000.

Multi-Species Mecca

Diascund Creek, Timber Swamp, Beaverdam Creek, Wahrani Swamp, and Barnes Swamp all feed the reservoir, and are choice spots for angling. There are a slew of no-name coves and guts that hold fish, too.

With such a diverse population of fish species, anglers have options aplenty when visiting Diascund Creek Reservoir. As the fish survey and sampling confirms, bluegill provide fine sport for light-tackle, spin-cast, and fly-fishing enthusiasts. Curly-tailed grubs, small tube jigs, spinners, and popping bugs trick many bluegill and shellcrackers.

Chain pickerel are prone to pounce on bass lures and live minnows. Effective lures that hoodwink

Gone is the old concessionaire that provided lake access. Now, visitors will be delighted to find a new, free, public boat ramp and pier, made possible by a joint effort between VDGIF, the City of Newport News Water Works, and James City County Parks and Recreation.



©Marc McGlade



"jacks" are spinnerbaits, jerkbaits, plastic grubs, crankbaits, and spinners. Live minnows fished under a bobber take their share of the toothy fish, too. Grassy or woody areas are especially effective to target these elongated specimens. The islands near the launch ramp are usually good areas to pick up a pickerel or two.

Largemouth bass fishing reigns supreme at Diascund. Trophy-class individuals aren't uncommon; in fact, this fine reservoir anchored the seventh spot statewide for trophy largemouth bass during 1999. The jig-and-pig combination, plastic worms and lizards, crankbaits that mimic shad, spinnerbaits, buzzbaits, and other topwater lures work very well, particularly during the springtime.

Black crappie populations are stable here, and traditional tried-and-true lures and live bait work well. Try dancing marabou crappie jigs or live minnows in a brush pile and you'll soon have an arch in the rod. The bridge crossings and their pilings are good spots for the "speckles."

Don't be surprised to hook a massive bowfin or gar at Diascund Creek. They are likely to smash a lure intended for another species or pummel a live bait offering. The good news is their strikes resemble a runaway freight train and they fight like the dickens. The bad news is both species have a mouthful of teeth, so use caution when removing the hook.

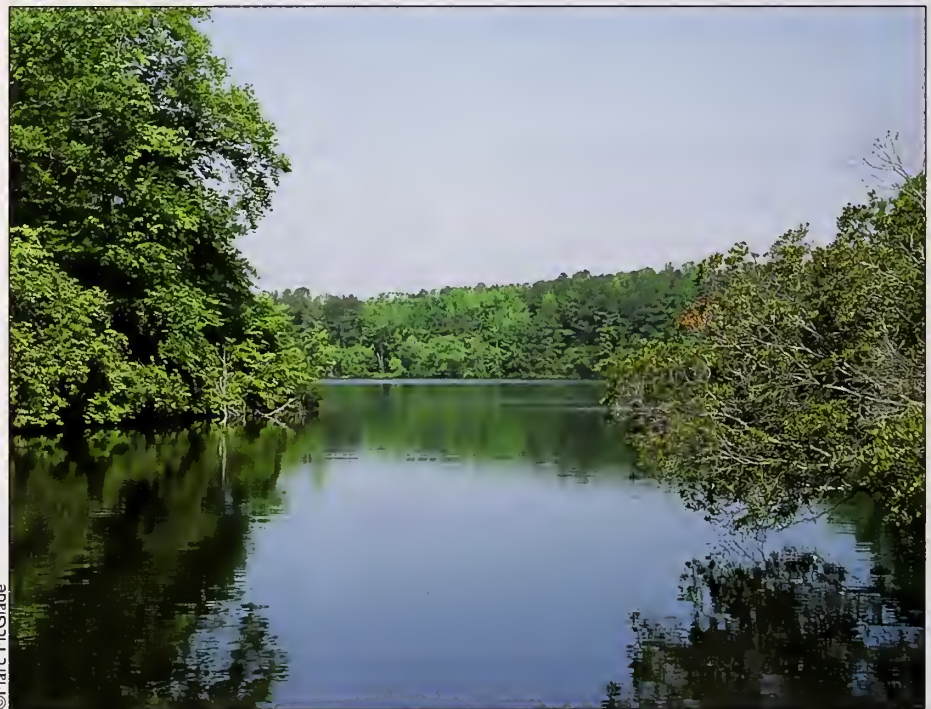
Come See for Yourself

Now that lake access is reopened and fish are once again cooperating for anglers, isn't it time to drop in for some spring fishing on Diascund Creek Reservoir? If a quiet getaway and relaxing day—only interrupted by the splashing and thrashing of fish—is what you desire, then proceed to Lanexa.

Within a short drive is Colonial Williamsburg, where you can experience fine dining on fish and wild game in many restaurants, or top off



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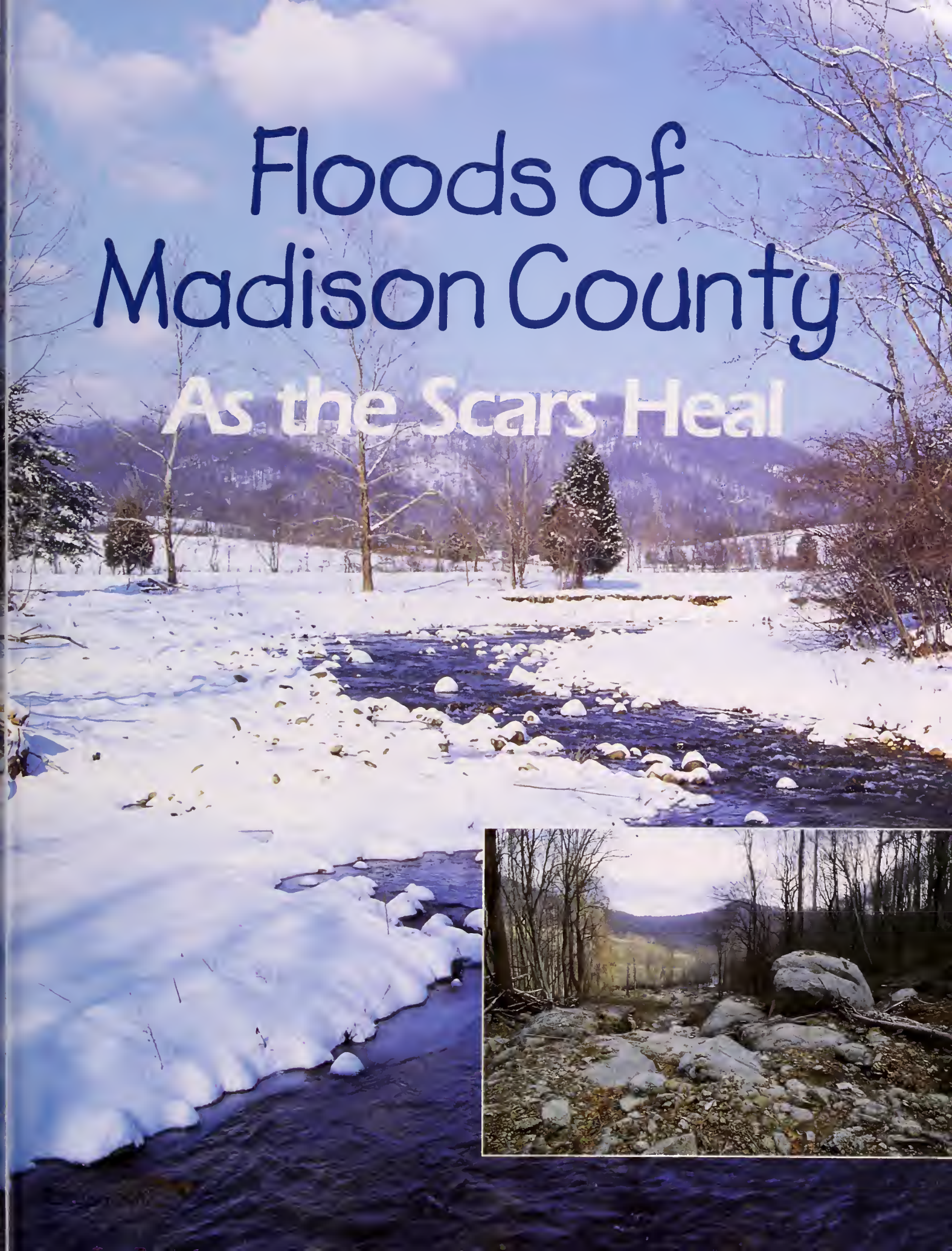
your day with a stay-over at a Bed & Breakfast. There are many activities to satiate the outdoor soul in this hospitable region of Virginia. □

The bridge crossing Diascund Creek Reservoir and the tree-lined banks are good places to try for bass, crappie, and chain pickerel.

Marc McGlade is a free-lance writer and photographer for national and regional magazines, newspapers, and Web sites. He's also a fishing instructor and lecturer. Marc lives in Midlothian, Va.

Floods of Madison County

As the Scars Heal





©Dwight Dyke

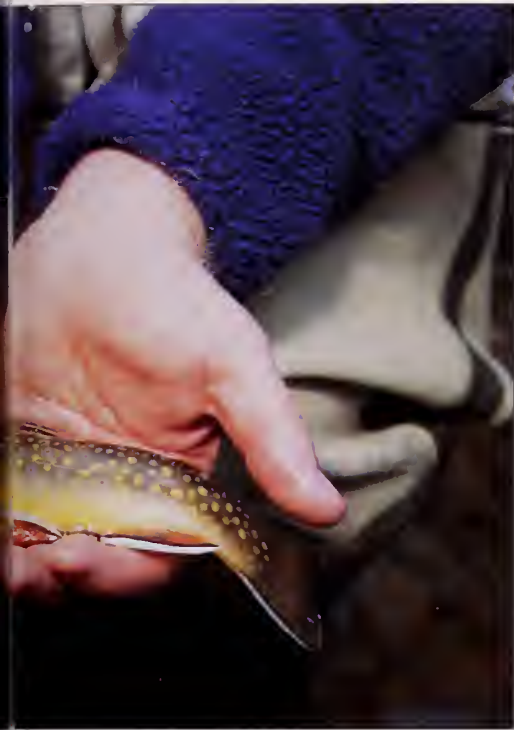


©Dwight Dyke

by Tom Gunter

Persistent rains fell over the Commonwealth for nearly a week in late June of 1995 causing high water conditions in many rivers and saturating soils throughout the state. On June 27–29, sections of Albemarle, Green, and Madison counties received localized heavy downpours, as a low pressure system carrying tropical moisture from the Atlantic Ocean stalled along the Blue Ridge Mountains. Flooding occurred that was characterized as a 500-year event. The thin saturated soils along the mountain slopes gave way, resulting in horrendous debris flows. These flows sheared the sloping river valleys destroying everything in their path, and unfortunately, claimed the life of a Criglersville, Virginia, woman. As tragic as this event may seem, however, it is not an uncommon occurrence throughout the Appalachian Mountain Range. Severe debris flow events occur about every three years in this mountain chain. Some of the finest brook trout rivers in the

Virginia is blessed to have the majestic Blue Ridge Mountains with its many blue ribbon trout streams and also to have its eastern coast bordered by the Atlantic Ocean. However, when the two interact, the results can be devastating. Such was the case in late June of 1995 along the eastern slope of the Blue Ridge Mountains, in Shenandoah National Park.



state were devastated by this June 1995 event, including the North Fork Moormans, Conway, Rapidan, and the Staunton. Most of the damage occurred in the lower and middle sections of these rivers where debris flows had occurred. The following is a summation of trout population recovery from this flooding event.

On the North Fork Moormans River, brook trout numbers improved every year from 1996 through 1998. Then, in 1999, the state experienced a drought that

Since the devastating floods of 1995, rivers like the North Fork Moormans, Conway, Rapidan, and Staunton are showing a remarkable recovery.

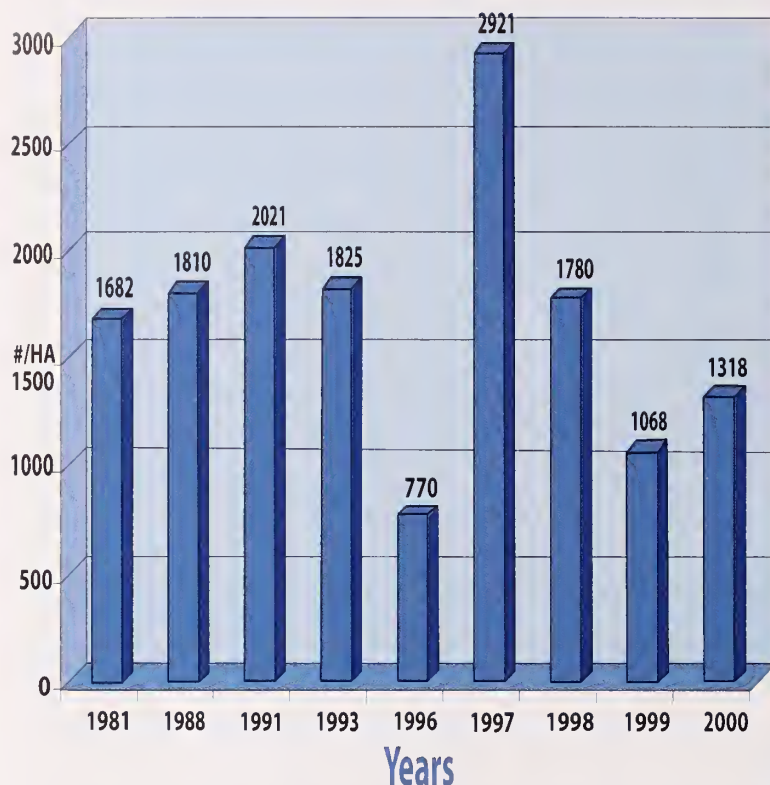
Left: Brook trout (*Salvelinus fontinalis*) and brown trout (*Salmo trutta*) numbers have actually increased to higher levels than before the floods.

caused a drop in trout numbers in this river. By the following year, however, the drought was over and trout numbers rebounded, but remained below the pre-1995 levels (Figure 1). Trout remain restricted to the middle and upper portions of the river which were less impacted by debris flows in 1995. This river should, however, continue to improve but may be easily impacted by drought conditions due to the lack of adequate canopy cover in the lower and middle sections of the river.

Access to the North Fork Moormans River is via Route 614 above Sugar Hollow Reservoir. The best fishing is from Big Branch, a tributary to the North Fork, upriver. Fishing this river requires considerable hiking, but the terrain is fairly level, and trails are well established along the riverbank. The North Fork



Figure #1: **Estimated #/HA of Brook Trout, North Fork Moormans River 1981-2000**



Moormans is a catch-and-release river within the boundaries of the Shenandoah National Park.

On the Conway River, the number of brook trout were cut in half by the 1995 flood. Brown trout numbers in the river, too, were reduced, even more dramatically (by 80 percent) than that of the brook trout. Since this event, however, this river has shown a vast improvement in numbers for both trout species. By 1999, the number of brook trout in the Conway far exceeded that reported prior to the 1995 flood and the river's brook trout population did not seem to be impacted by the drought of 1999.

Brown trout in the Conway now exceed the estimated number reported prior to 1995 and they are truly the highlight of this river's

trout fishery. Browns in the Conway are approaching trophy size (19 inches and greater) with fish between 12–15 inches in good abundance. This species also appears to be extending its population upriver.

Access to the lower Conway River is through private property and parking is limited on Route 667. Better access is through the Rapidan Wildlife Management Area (WMA) on Route 615, which runs along the Park boundary. The best fishing is from the end of Route 667 upriver to Route 615. Prime trout waters on the Conway are from elevations of 1000 feet up to 2600 feet. Foot trails are well established along the riverbank. Trout may be creelied in that portion of the Conway and its tributaries within the Rapidan WMA, and the fishery is regulated by a 9-

inch minimum, 6 fish per day limit.

The most severely damaged river by this flood was the Staunton River, a tributary to the Rapidan River. The middle and lower sections of this river were devastated by debris flows. As a result, brook trout were limited to the upper and middle portions of the river until 1998, when young-of-the-year trout began to appear in the lowest section. By 2000, all sizes of brook trout were found throughout the watershed. Because the canopy cover on the middle and lower sections of this river was so severely damaged, the brook trout population experienced a reduction in numbers in 2000 as a result of the 1999 drought. Regardless of the drop in the overall quality of this trout fishery during the drought, this river has made an un-



believable recovery from the 1995 flood.

Access to the Staunton River is best gained from Route 662 north of Graves Mill, with parking available at the end of the road. The river can be located by following the Rapidan River upstream to the confluence of the Staunton, which is the first tributary flowing from the southeastern slope of the Sag Fork Mountain. Trails are established along the riverbank but heavy hiking is required. The river starts at an elevation of about 1000 feet and rises to 2600 feet. The fishery is regulated by catch-and-release only within the boundaries of the Shenandoah National Park.

Much like the Staunton and Conway rivers, the Rapidan River has shown a remarkable recovery in the

aftermath of the 1995 flood. The number of brook trout reported in the river in 2000 was at an all-time high. Although brook trout remain restricted to the middle and upper portions of the river, the quality of this fishery is much better than that reported in the middle to late 1970s and mid 1980s.

Access is best gained from Route 649 near Criglersville to the intersection of old Route 662. Fishing the Rapidan from this intersection, known as the junction hole, is good downriver to the confluence of the Staunton River, at about elevation 1000 feet, and upriver to Hoover's Camp, inside the Shenandoah National Park at an elevation of 2600 feet. The Rapidan is a fish-for-fun stream, and regulated by a catch-and-release policy.

Fisheries biologists continue to monitor the progress of trout and other aquatic species in the streams damaged by the floods of 1995. With a little more time to heal, these majestic streams will once again gain the notoriety as some of the finest blue ribbon trout streams in Virginia.

To say that these native and naturalized brook and brown trout rivers are resilient would be an understatement. Other than the lower sections of the North Fork Moormans and Rapidan rivers, these streams have returned to the great trout fishery they were prior to the 1995 flood. In some cases, like the Conway and Rapidan rivers, they are even better!

Tom Gunter is a fisheries biologist for the Virginia Department of Game and Inland Fisheries.



Journal

VDGIF 2002 Calendar of Events

April 26-28: *Becoming an Outdoors Woman*, Hungry Mother State Park, Marion, Va. For information call (804) 367-6351.

May 2-5: *Birds and Blossoms*, Norfolk Botanical Gardens. For information call (757) 441-5838.

August 2-4: *Mother & Daughter Event*, Holiday Lake 4-H Educational Center, Appomattox, Va. For information call (434) 367-6351.

September 13-15: *Wilderness Survival Weekend*, Lake Robertson, Lexington, Va. For information call (804) 367-6351.

September 21: *Virginia Outdoors Day*, Belle Isle State Park, Warsaw, Va. For information call (804) 367-6351.

October 18-20: *Virginia Outdoors Weekend*, Westmoreland State Park. For information call (804) 367-6351.

The Upper James Atlas

reviewed by Bruce Ingram

Upper James Atlas, prepared by W.E. Trout, III, for the Virginia Canals and Navigations Society, softcover, 116 pages, \$20.50.

As someone whose favorite kind of fishing involves floating Virginia's rivers, I have long used—and been enamored with—the river atlases prepared by the Virginia Canal and Navigations Society (VC&NS). Copies of the Shenandoah, Rappahannock, and the James River Batteau Festival Trail atlases, for example, accompany me on every excursion down those streams.

Now, the VC&NS has published

a companion atlas to the earlier James one, beginning at Lynchburg where the other publication left off and continuing upstream to where the James begins when the Cowpasture and Jackson rivers commingle at Iron Gate. What's more, this new publication, *The Upper James Atlas*, also includes maps of the Cowpasture and Jackson rivers as well as Craigs and Potts creeks.

For river runners, the major strength of *The Upper James Atlas*, and the same is true for the entire series, is that the publication covers mile by mile what paddlers can expect to encounter on the stream. For instance, one of the most popular junkets on the James is the three miler from Narrow Passage to Springwood. The atlas, of course, details the Horseshoe Bend put-in and Route 43 leading to it, but it also gives the historical name of the float's major rapid, Ritchie's Falls, warns of and tells where a 3-foot drop is at Ritchie's Falls, and displays where a passageway in the form of a sluice exists.

Similar detail exists on other sections of the upper James. On the Glasgow to Snowden section, the atlas lists the historical name of every rapid. Veteran James paddlers will recognize the section's most famous rapids, Balcony Falls and Little Balcony Falls, but will also learn the names of the other rapids such as Tobacco Hills, Velvet Rock, and Sly Rock falls.

The publication is much more than just maps and place names. History buffs may enjoy the saga of Frank Padgett, a slave, who in 1854, rescued a canal boat captain and others that had fallen victim to the treacherous Balcony Falls. One chapter deals with how Craigs

Creek was envisioned as a potential link between the East Coast and the frontier while another chapter reveals the history of the unfinished section of the James River and Kanawha Canal. *The Upper James Atlas* is simply a must have book for lovers of a stream often called "Virginia's River."

To purchase *The Upper James Atlas*, contact VC&NS Sales, 4066 Turnpike Road, Lexington, VA 24450, (540) 463-6777, dunoon@intelos.net. □



©King Montgomery

Capital Sport Fishing, Travel & Outdoor Show and The Old Dominion Fly Fishing Show

by King Montgomery

Lefty Kreh heads an all-star cast of guest celebrities at the Old Dominion Fly Fishing Show, February 15-17 at the Capital Expo Center. The third annual show has joined the popular Capital Sport Fishing, Travel & Outdoor Show, which has a lineup of hundreds of fishing, hunting, and other outdoor recreation retailers, guides/outfitters, lodges, and conservation organizations. There are over 100 fly fishing exhibition booths. This show is one-stop

shopping for all your outdoor needs including 2002 fishing licenses and stamps from the VDGIF booth.

Lefty Kreh and Ed Jaworowski will give fly casting demonstrations and present slide seminars. Bob Clouser and C. Boyd Pfeiffer will do fly tying demonstrations and seminars. Harry Murray, Harry Robertson, Phil Gay, Joe Bruce, Gary DuBiel, Jack Dennis, and I will give informative slide shows on various aspects of fly angling.

The Old Dominion Fly Fishing Show is from 1:00 p.m. to 9:30 p.m. on Friday, 10:00 a.m. to 7:00 p.m. on Saturday, and 10:00 a.m. to 6:00 p.m. on Sunday. Admission is \$8 for adults, \$3 for children, and kids under 5 years are admitted free. Admission fees cover both shows. Parking is ample and free. Food and beverages will be available.

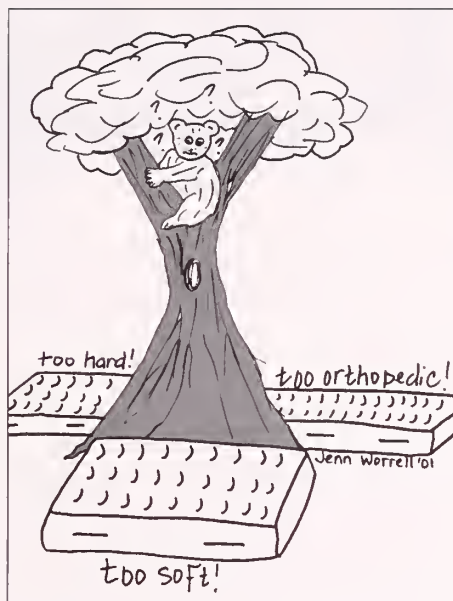
For more information, call Beau Beasley at (703) 793-1159, e-mail fishutopia@cox.rr.com, or see the Web site at www.sportshows.com and follow the link to the Old Dominion Fly Fishing Show. □



written and illustrated
by Jennifer Worrell

A Mattress to Discount

Last summer a very curious black bear wandered onto the streets of Norfolk and tried to stake out some prime real estate. Needless to say he alarmed several of the local residents in the process, which resulted in a 911 call to local police reporting a big, furry black bear on the loose. Virginia Department of Game and Inland Fisheries (VDGIF) biologist



Phil West, who was called to assist, came to the rescue only to find the bear in a tree. Knowing he would have to use a tranquilizer dart to capture the bear, West and fellow VDGIF employees rushed to a nearby mattress store. The owner gave the biologist several mattresses in hopes that they would cushion the bear's fall. Phil placed the mattresses around the tree, and he took careful aim with his tranquilizer gun. The bear fell gracefully to a "Serta-fied" landing. Phil and his partners took the bear to the Dismal Swamp where he could find more suitable property. After reporting the incident on a local television station, a newscaster queried, "I wonder who will sleep on those mattresses now?" □



Wildlife Chauffeur

Wildlife can end up in the strangest places when well-mean-

ing humans are involved. King and Queen game warden, B.I. Bell, received a call to come get a fox from a neighborhood. When he arrived, the fox was gone. Another call came from the local sheriff's office stating that the fox was in a car in another part of the county and had bitten the driver. Bell sped to the designated area, located the car, and peered in the window to see a fox cowering in the backseat. The fox's chauffeur was rubbing her bitten hand.

When he questioned the woman as to why she moved the fox, the woman said that she wanted to take it to a vet. When asked how she moved the animal, she stated, "I picked him up by the scruff of his neck like a momma picks up a baby."

Apparently, the fox didn't appreciate the method she used when she tried to remove him from the car. Unfortunately, Bell had to destroy the fox after the bite due to the threat of rabies. Perhaps the fox would have been happier in a limousine—or left to his own devices in the wild!

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Answers to the December 2001 "Byrds Nest" Crossword Puzzle

The following clue was inadvertently left off of the December puzzle.

Across
23. Water flow obstruction

RECIPES

by Joan Cone

A Crab Dinner for Presidents' Month

Of the 20 Virginia seafood species, the blue crab ranks second in harvested pounds of 28,846,177 with a dockside value of \$24,115,536. These figures for the year 2000 were provided by the Virginia Marine Resources Commission.

Mature blue crabs average five to seven inches across and are most plentiful from late spring through fall. Crabmeat is available in many forms year-round and is always a favorite among Virginians.

Menu

Tortilla Crackers
Crabmeat Supreme
Cool Cherry Salad
Lazy Daisy Cake

Tortilla Crackers

1 egg white
2 tablespoons water
3 flour tortillas, cut into 8 wedges
Toppings such as Parmesan cheese, dried herbs, sesame or poppy seeds

Preheat oven to 400°F. Mix egg white with water and brush over one side of each tortilla wedge. Place on baking sheet. Sprinkle on topping of your choice and bake until crisp, approximately 15 minutes. Serves 4 to 6.

Crabmeat Supreme

1 pound blue crabmeat, fresh or pasteurized
1 package (6 ounces) chicken flavored stuffing mix
1 cup mushrooms, sliced
2 teaspoons Worcestershire sauce

Salt to taste
2 eggs, slightly beaten
½ teaspoon paprika
1 can (8½ ounces) water chestnuts, drained and sliced
2 cups diced celery
1 package (2¼ ounces) slivered almonds
2 cups shredded Cheddar cheese

Preheat oven to 375°F. Remove any pieces of shell or cartilage from crabmeat. Prepare stuffing mix according to package directions. Spread stuffing mixture in a 12 x 7 ¼ x 2-inch baking dish. Combine rest of ingredients except for 1 cup cheese and almonds. Layer seafood mixture over stuffing mix. Combine reserved cheese and almonds and place on top of casserole. Cover with foil and bake in oven for 30 to 45 minutes or until thoroughly heated. Remove foil for the last 10 minutes of baking. Makes 6 to 8 servings.

Cool Cherry Salad

This delicious recipe was passed on to me by Marika Byrd, office manager for this magazine's staff.

1 can (15 to 16 ounces) tart red cherries
⅓ cup sugar
1 box (3 ounces) raspberry gelatin
1 can (8 ounces) crushed pineapple
¾ cup chopped nuts

Empty cherries with juice into a saucepan and heat. Add sugar and mix well until sugar is dissolved. Remove from heat and add gelatin, stirring until dissolved. Then add pineapple with juice and nuts and mix well. Pour into an 8 x 8 square

dish. Put into the refrigerator and chill thoroughly. Makes 9 servings.

Lazy Daisy Cake

1¼ cups boiling water
1 cup quick oats, uncooked
⅓ cup butter or margarine, softened
1 cup sugar
1 cup firmly packed brown sugar
2 egg whites or 1 egg
1 teaspoon vanilla
1¾ cups flour
1 teaspoon soda
1 teaspoon cinnamon
¼ teaspoon ground nutmeg
¼ teaspoon salt (optional)

Topping:

½ cup flaked coconut
½ cup firmly packed brown sugar
½ cup quick oats, uncooked
3 tablespoons milk
2 tablespoons butter or margarine, melted

Preheat oven to 350°F. Lightly grease and flour an 8 or 9-inch square baking pan. For cake, pour boiling water over oats; set aside. Beat margarine and sugars until creamy. Add egg whites and vanilla and beat well. Add oat mixture and combined dry ingredients; mix well. Pour batter into prepared pan. Bake 50 to 60 minutes or until wooden pick inserted in center comes out clean.

For topping, combine all ingredients and mix well. Spread evenly over top of warm cake. Broil about 4 inches from heat 1 to 2 minutes or until topping is bubbly. Watch closely as topping burns easily. Cool cake in pan. Store tightly covered. Makes 12 servings. □



On The Water

by Jim Crosby, Region 4 Boater Education Coordinator

Boater's Fuel

I'd like to share with you a tough lesson learned the hard way. At considerable expense, I recently had to have the entire fuel system on my boat renewed. The water/fuel separator filter and inline fuel filter had to be removed and replaced—the easy part. The four-barrel carburetor had to be rebuilt, as well as trash and water had to be removed from the 35-gallon fuel tank itself.

This expensive exercise began with a sputtering and surging of the engine that soon stopped completely in the middle of Lake Anna. Luckily, I had a friend nearby who towed me into the marina from which I had just launched. That ended a fun day on the lake for us.

When I got home, I started to reflect on the mishap and remembered an incident on the lower James River a couple of years back. We were traveling with another couple, who were on their own vessel. We had just completed a run down the James from Richmond and prior to going under the James River Bridge at Hampton, we decided to consult on fuel and other matters. During the gunwale-to-gunwale visit, we decided to fuel up and headed in toward a marina off to our left that we found on the chart. The channel led us right up to the fuel dock where the dockmaster informed us that he would not pump gas for another hour. He explained that the tanker had just made a fuel dump and his gasoline was contaminated by the water and sediment stirred up from the bottom. It needed time to settle out before he would turn on the pump. He directed us to

another marina just up the creek where we could fuel up.

We were all very impressed by his action. It was definitely in our best interest and at his expense.

This event reminded me that when I last filled my boat on the way to Lake Anna, I had seen a fuel tanker parked in the gas station's lot. Immediately, I knew the cause of my engine problems. The mechanic confirmed the problem was debris and water in the gas tank that had saturated the filters and worked its way into the carburetor.

Upon emptying my pockets, I was allowed to retrieve my vessel from the repair shop. To avoid that problem in the future, I fully intend

avoiding any fueling station that has recently had a fill-up. In addition, I now have the best incentive in the world to change my water separator and fuel filters every season.

This problem cannot only affect boat engines but highway vehicles as well, so it's a good idea to apply the same criteria to the fuel you pump into your tow vehicle, grocery-getter and other family conveyance.

Today, one can be in just as much financial and emotional trouble when the engine stops on the interstate as on the waterways. Just think of the tow and repair bills, as well as dealing with the emotional strain on your travel schedule. □



Wild Backyard

story and photos by Marlene A. Condon

American Sycamore

The American sycamore (*Platanus occidentalis*) is not a tree typically cultivated in back yards. However, this fast-growing tree has wildlife value, especially for those folks who adore American goldfinches.

The “buttonball” tree, as the sycamore is nicknamed because of its globular seed clusters, is common throughout the eastern half of the United States, growing in wet locations along streams, rivers, and flood plains. It is one of the largest trees of the eastern deciduous forest. The American sycamore is an “indicator” species, for wherever you see lots of big sycamores growing, you can bet this indicates an abundance of water in the area.

American sycamore flowers are miniscule, produced in spring in dense heads. The fruiting ball that results from fertilization is composed of many closely packed, long, narrow seeds. The fruits mature by early fall, attracting American goldfinches that are the main species of bird to eat the seeds. Some of the balls persist through winter on leafless branchlets, making them a great source of food for seed-eating birds that may be having difficulty finding food as spring approaches. Seeds are usually in very short supply by the end of winter. Eventually the fruiting balls slowly begin to break apart, falling to the ground where beavers and some small rodents might eat them.

The limbs of American sycamore tend to be widely spaced so you might not think of them as providing much cover for birds. However, I have seen a ruby-throated hummingbird nesting in one of these big trees. The tiny lichen-and-spider-silk-mantled nest was between 25 and 30 feet above the ground, and two young hummers successfully fledged from it.

If you have an area with plenty of underground water and room for a substantial tree to grow, sycamores are easy to cultivate from seed and they shoot right up (several feet a year). An older sycamore has a beautiful natural form; the foliage is reminiscent of a maple, and the gray-and-brown-and-creamy-white mottled bark can be just gorgeous, especially in winter.

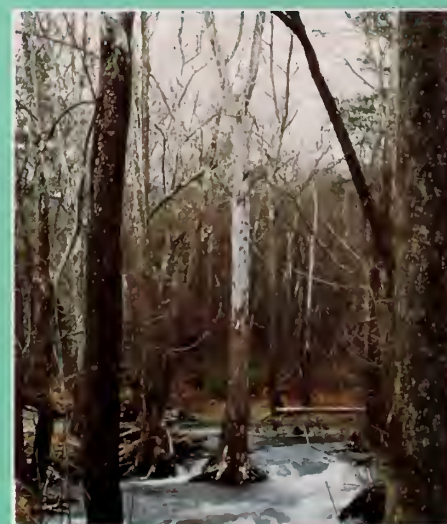
If you want to see our North American “canary” (goldfinch), do try to grow a buttonball tree! ■



American sycamore flowers are tiny and produced in dense heads.



A close look at the mottled bark of the American sycamore reveals a subtle beauty.

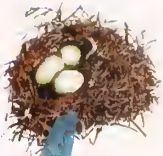


It is not uncommon to see American sycamore where water is close by.



story and illustration
by Spike Knuth

Naturally Wild



American Robin *Turdus migratorius*

Despite what the calendar may say, some birds will begin their migrations this month! In Virginia, it's sometimes hard to detect the first northward movements of birds, since it is on the northern edge of the wintering range for many species. So it is with the American robin, which begins staging for their northward migrations as early as mid-January.

During severe weather, they'll head for the protection of a wooded swamp or dense woodlands. Here they depend heavily on holly berries, which at this time may be the only wild fruit available. Wintering robins have white edges on their rufous breast and belly feathers and are duller all around from their normal plumage. New migrants from farther south stand out with cleaner, brighter colors. All through February and March, masses of robins sweep in on residential areas each evening as they seek out communal roosts in cedars, pines, hollies, and other ever-

greens. They chatter and squabble for places until darkness quiets them.

The American robin was named after the robin redbreast of Europe, an unrelated but beloved bird of the colonists, because it reminded them of it. Others called it "field fare" a related member of the thrush family of Europe. *Turdus migratorius* means "migrant thrush." The robin is in the thrush family which, in the eastern United States, includes the eastern bluebird, hermit thrush, wood thrush, veery, gray-cheeked thrush, Bicknell's thrush, and Swainson's thrush.

The robin has thrived alongside mankind, using his yards, parks, orchards, and buildings for nesting, shelter, and food. Nesting almost cheek-to-jowl in our yards, robin's overlapping territories lead to much squabbling all summer long. They build a nest platform of twigs and grasses, with a bowl of mud set on top, with grasses interwoven, and the cup lined with fine grasses. Usually four "robin's-egg-blue" eggs are laid. Many a youngster owes their first experience with wild bird nests, eggs, and young to the robin that nested in their yard.

The robin's main food is worms, that they get from lawns and fields, but they eat all types of insects, turning to wild fruits and berries in late fall and winter. □



It's a Taxing Time— Even for Wildlife

This year **YOU** can help support Virginia's Nongame Wildlife program by giving a donation through your state income taxes. When you do this, you are supporting the essential wildlife research and management of Virginia's native birds, fish, and other nongame animals. Much of the Nongame Wildlife program sustains its work through the generosity of the citizens of Virginia.



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Please check off a donation to the Nongame Wildlife Fund on your Virginia income tax form today or send your tax-deductible check, (made payable to the *Treasurer of Virginia*), to: Virginia Nongame Wildlife Fund, Virginia Department of Game and Inland Fisheries, P.O. Box 11104, Richmond, VA 23230-1104.

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